

Appl. No. 10/708,541
Amdt. dated July 15, 2005
Reply to Office action of April 18, 2005

Amendments to the Specification:

Please replace Paragraph [0004] with the following amended paragraph:

[0004] Low-pass filters are widely used as building blocks in circuit designs. They are usually used to filter out unwanted spurious responses and harmonics of higher
5 frequencies. Performance of a low-pass filter is characterized by insertion loss in the passband and rejection in the stopband. The level of rejection in the stopband is mainly determined by the order of the filter. The higher the order of the filter, the better the rejection in the stopband. However, a filter of higher order requires more elements in filter designs, which leads to a larger circuit size and more insertion loss. Shown in Fig. 1
10 is a prototype circuit of a conventional third order low-pass filter. P11 and P12 are two ports of the filter. L11 and L12 are two inductors, and C13 is a capacitor. In RF circuit designs for modern wireless handheld devices, due to the tight requirement on circuit size, the third-order filter as shown in Fig.1 is usually employed for a balance between circuit size and filter performance.

15 Please replace Paragraph [0008] with the following amended paragraph:

[0008] In the claimed invention, a negative mutual inductance between two inductors of a conventional third-order elliptic-type low-pass filter is enlarged to a designed value and utilized to create an additional notch in the stopband, so as to improve the rejection in the stopband of the claimed invention low-pass filter. The two inductors are spiral in
20 shape and the orientations of the first inductor and the second inductor are of opposite sense such that a mutual inductance between the first inductor and the second inductor is negative and equals a designed value. A first capacitor and a second capacitor are shunt-connected to the first and the second inductor respectively to form the elliptic-type filter. A third capacitor is electrically connected to ground at its first end, and electrically
25 connected to the end of the second inductor at which the second inductor [in] is electrically connected to the first inductor in series at its second end.